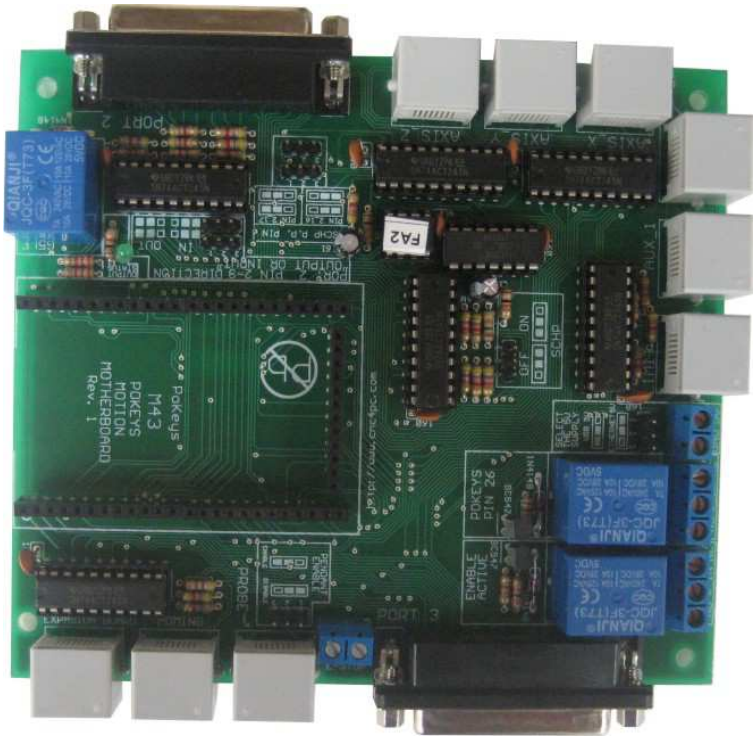
CNC4PC

Integration Solutions for CNC Projects

# USER'S MANUAL

# M43 – POKEYS MOTION MOTHERBOARD Rev. 1




MAY 2015.

**USER'S MANUAL**

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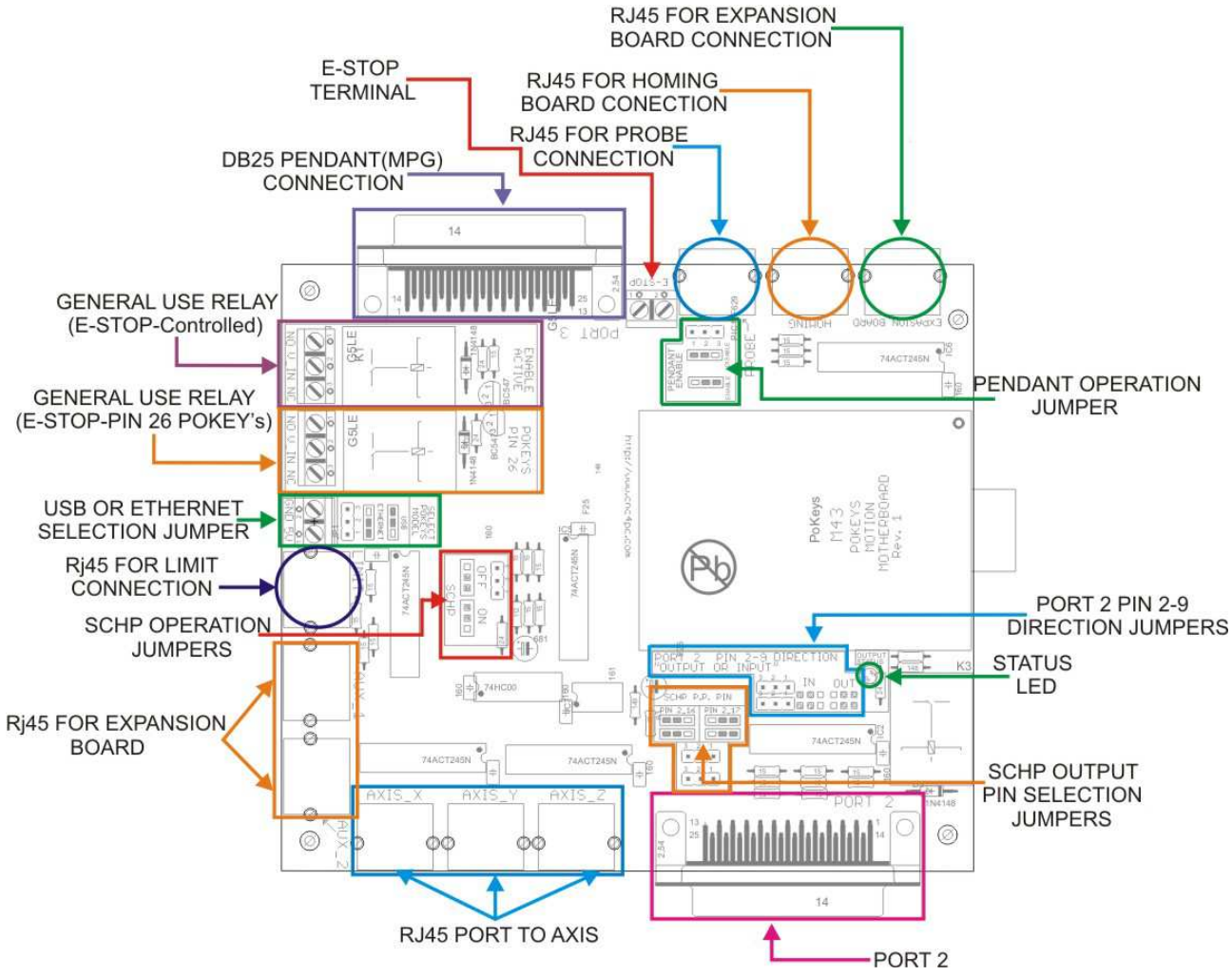
## 1.0 OVERVIEW

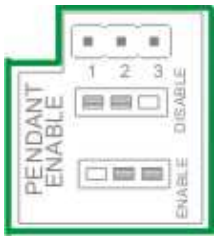
M43 is a motherboard for the pokeys motion core that allows connecting to drivers using RJ45 connections. It also adds popular features, such as pendant connection, relays, and expansion port spindle control.

## 2.0 FEATURES

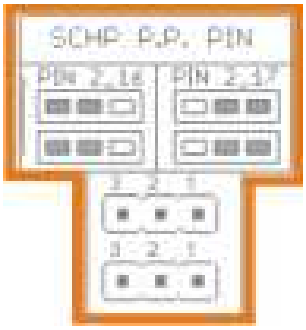
- **Compatible with pokeys motion for Ethernet and PoKeys motion for USB**
- **Control axes (X, Y, Z) using RJ45 connections.**
- **RJ45 connectors for homing and limit functions.**
- **Connection for a probe board (C48).**
- **User-selectable SCHP monitoring function.**
- **Connection for an external pendant.**
- **Connection for an spindle speed control board such as C41 or C47.**
- **LED indicator for output status.**
- **1 General purpose relay.**
- **DB25 connector to emulate LPT2 port.**

# 3.0 BOARD DESCRIPTION



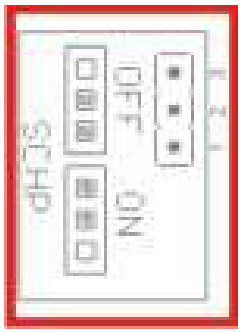



- Select if a pendant is to be integrated into the setup.

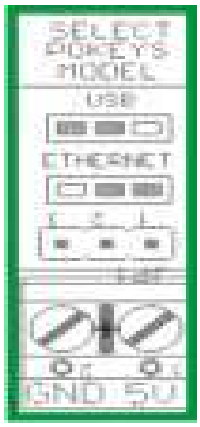



- Select if the SCHP will be configured on pins 2_16 or 2_17.

- Select if pins 2-9 on port 2 are to be used as inputs or outputs.




- **SCHP:**
  Enable or disable the SCHP.




- Select the type of Pokeys board to be used.

# 4.0 SPECIFICATIONS

## 4.1 POWER REQUIREMENTS

It requires a 5VDCVDC @ 500 mA external power supply to operate.

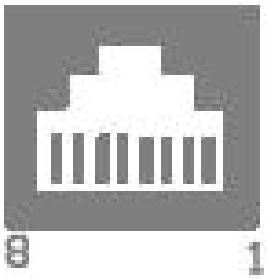
**WARNING**

Check the polarity and voltage of the external power source and connect the 5VDC and GND. Overvoltage or reverse-polarity power applied to these terminals can cause damage to the board, and/or the power source.

## 4.2 RELAYS SPECIFICATIONS

| ELECTROMECHANICAL RELAYS SPECIFICACTIONS | |
|---|---|
| Maximum AC Current | 7A, 240VAC; (NC CONTAC)<br>10A, 125VAC; (NO CONTAC) |
| Maximum DC Current | 10A, 28VDC; (NC CONTAC)<br>10A, 28VDC; (NO CONTAC) |

## 5.0 RJ45 WIRING




Order of wires for RJ45 connectors

### 5.1 TABLES OF COMPATIBILITY

| RJ45 AXES | | | | | |
|---|---|---|---|---|---|
| **RJ45** | **POKEYS PIN** | **AXIS X** | **AXIS Y** | **AXIS Z** | **C34** |
| 1 | NC | NC | NC | NC | NC |
| 2 | STEP | PK46 | PK48 | PK49 | PUL |
| 3 | NC | NC | NC | NC | NC |
| 4 | GND | GND | GND | GND | GND |
| 5 | 5V | 5V | 5V | 5V | SOFT_ENABLE |
| 6 | DIR | PK38 | PK39 | PK40 | DIR |
| 7 | NC | NC | NC | NC | NC |
| 8 | 5V | 5V | 5V | 5V | ENABLE |
| OTHER BOARD<br>C43DE, C34DE-AB, C34DE-B, C34DG, C34DG10, C34DGA, C34G201, C34G203, C34G251, C34G320X, C34GSK, C34KL, C34KLD, C34LSHB, C34LMX, C34MIX, C34MIX2, C34PS25, C34SGDM, C34TE, C34TSTA, C34VP75, C34VP200 | | | | | |

| RJ45 AUXILIARY 2 | | | | |
|---|---|---|---|---|
| **POKEYS FUNCTION** | **POKEYS PIN** | **RJ45** | **C5** | **C41** |
| | | | **FUNCTION** | **FUNCTION** |
| GND | GND | 1 | GND | GND |
| OUT | PK17 | 2 | ACTIVATE SW4 | NC |
| OUT | PK19 | 3 | ACTIVATE SW3 | NC |
| OUT | PK18 | 4 | ACTIVATE SW2 | REV |
| OUT/PWM | PK11 | 5 | ACTIVATE SW1 | PWM |
| NC | NC | 6 | NC | NC |
| 5V | 5V | 7 | 5V | 5V |
| NC | NC | 8 | NC | NC |
| OTHER BOARD<br>C9, C15, C36, C37, C41, C47, C54, C55, C56 | | | | |

| RJ45 EXPANSION BOARD | | | | |
|---|---|---|---|---|
| **POKEYS FUNCTION** | **POKEYS PIN** | **RJ45** | **C55** | **C45** |
| | | | **FUNCTION** | **FUNCTION** |
| GND | GND | 1 | GND | GND |
| OUTPUT | PK28 | 2 | ACTIVATE SW4 | NC |
| OUTPUT | PK24 | 3 | ACTIVATE SW3 | NC |
| OUTPUT | PK22 | 4 | ACTIVATE SW2 | REV |
| OUTPUT/PWM | PK20 | 5 | ACTIVATE SW1 | PWM |
| NC | NC | 6 | NC | NC |
| 5V | 5V | 7 | 5V | 5V |
| NC | NC | 8 | NC | NC |
| OTHER BOARD<br>C9, C15, C36, C37, C41, C47, C54, C55, C56 | | | | |

| RJ45 HOMING | | | |
|---|---|---|---|
| **POKEYS FUNCTION** | **POKEYS PIN** | **RJ45** | **C16** |
| GND | GND | 1 | GND |
| HOME Z | PK51 | 2 | Z HOME |
| HOME Y | PK50 | 3 | Y HOME |
| HOME X | PK47 | 4 | Z HOME |
| NC | NC | 5 | RELAY NO |
| NC | NC | 6 | RELAY NC |
| 5V | 5V | 7 | 5V |
| OUT | PK5 | 8 | ENABLE |
| OTHER BOARD<br>C45, A32, A32-5, A61, A61-4 | | | |

| RJ45 LIMIT | | | |
|---|---|---|---|
| **POKEYS FUNCTION** | **POKEYS PIN** | **RJ45** | **C16** |
| GND | GND | 1 | GND |
| LIMIT – Z | PK37 | 2 | Z HOME/LIMIT |
| LIMIT – Y | PK36 | 3 | Y HOME/LIMIT |
| LIMIT – X | PK35 | 4 | X HOME/LIMIT |
| NC | NC | 5 | NC |
| NC | NC | 6 | NC |
| 5V | 5V | 7 | 5V |
| NC | NC | 8 | NC |
| OTHER BOARD<br>A32, A32-5, C45, A61, A61-4 | | | |

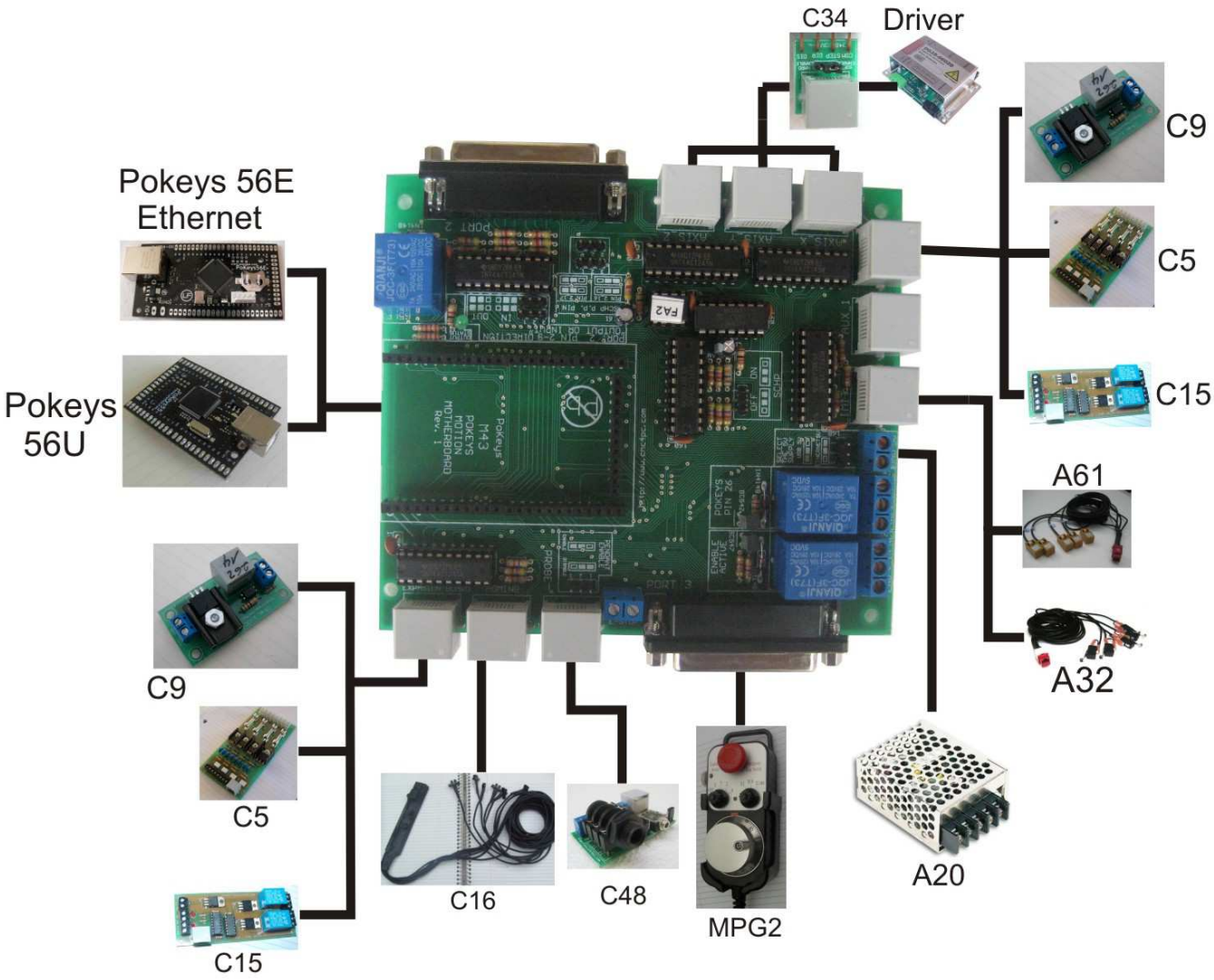
| PORT 2 | | |
|---|---|---|
| **Equivalent P.P. PIN** | **Pokeys Funtion** | **Pokeys PIN** |
| P2_1 | Out | 3 |
| P2_2 | Out/Input | 44 |
| P2_3 | Out/Input | 45 |
| P2_4 | Out/Input | 4 |
| P2_5 | Out/Input | 7 |
| P2_6 | Out/Input | 8 |
| P2_7 | Out/Input | 9 |
| P2_8 | Out/Input | 10 |
| P2_9 | Out/Input | 12 |
| P2_10 | Input | 29 |
| P2_11 | Limit + X | 32 |
| P2_12 | Limit +Y | 33 |
| P2_13 | Limit + Z | 34 |
| P2_14 | PWM Output/Input 2_14 | 21 |
| P2_15 | Input | 30 |
| P2_16 | Output | 54 |
| P2_17 | SCHP | 53 |
| P2_18 | GND | GND |

| RJ45 - AUXILIAR _1 | | |
|---|---|---|
| **Pokeys Funtion** | **Pokeys PIN** | **RJ45 PIN** |
| GND | GND | 1 |
| NC | NC | 2 |
| INPUT/Index | 25 | 3 |
| OUT | 27 | 4 |
| INPUT | 55 | 5 |
| NC | NC | 6 |
| 5V | 5V | 7 |
| NC | NC | 8 |

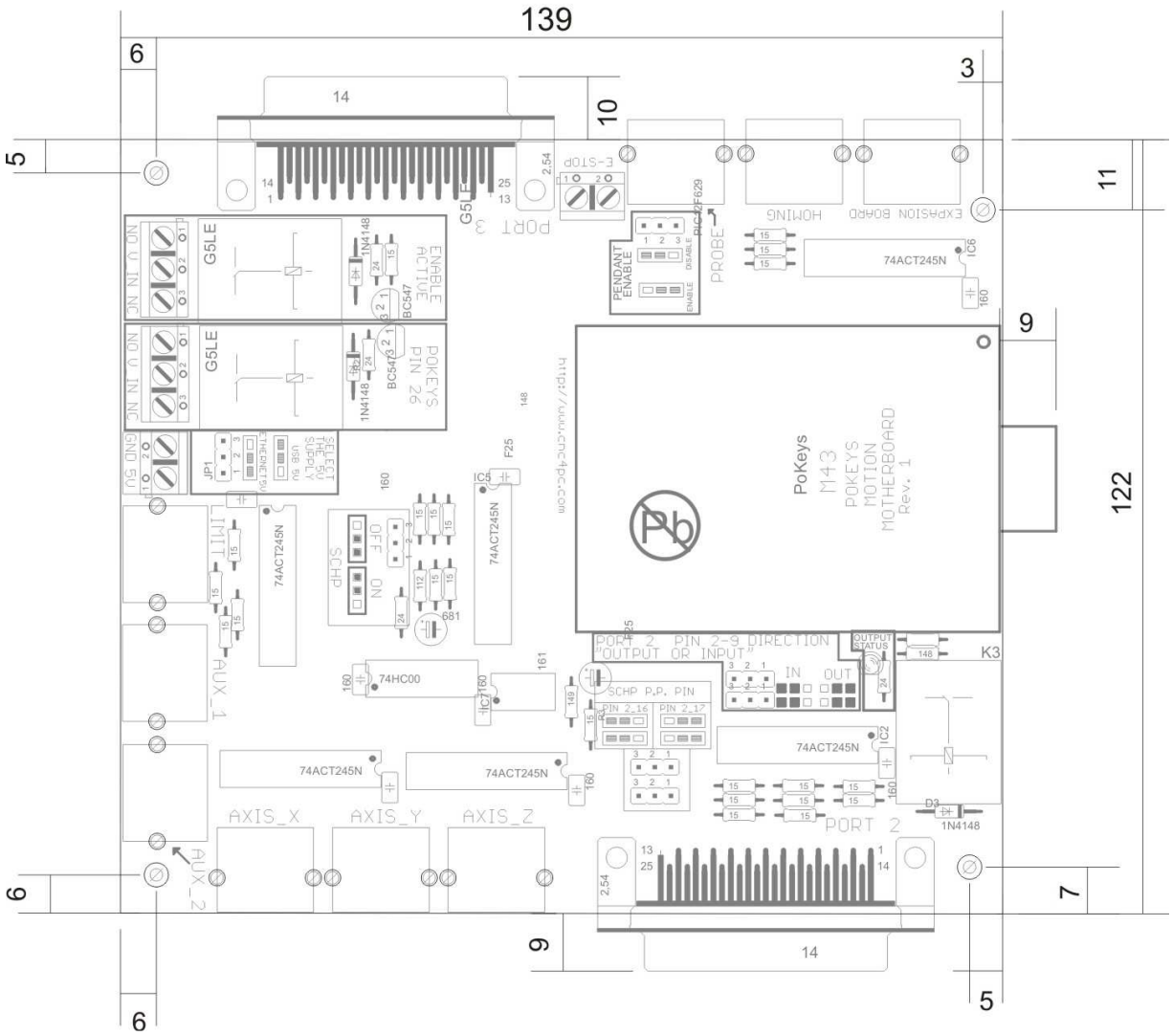
| PORT 3 (PENDANT) | | | |
|---|---|---|---|
| **DB25 PIN** | **POKEYS PIN** | **PENDANT FUNCTION** | **MPG2** |
| 1 | 5V | 5V | 5V |
| 2 | GND | GND | GND |
| 3 | PK1 | ENCODER A | ENCODER A |
| 4 | PK2 | ENCODER B | ENCODER B |
| 5 | NC | LED | NC |
| 6 | GND | GND | GND |
| 7 | PK6 | AXIS X | X |
| 8 | PK16 | AXIS Y | Y |
| 9 | PK23 | AXIS Z | Z |
| 10 | PK14 | AXIS 4 | 4 |
| 11 | PK43 | X1 | X1 |
| 12 | PK41 | X10 | X10 |
| 13 | PK42 | X100 | X100 |
| 14 | GND | GND | GND |
| 15 | PK52 | STOP | STOP |
| 16 | 5V | 5V | 5V |
| 17 | NC | NC | NC |
| 18 | PK31 | AXIS 5 | 5 |
| 19 | PK13 | AXIS 6 | 6 |
| 20 | NC | NC | NC |
| 21 | NC | NC | NC |
| 22 | NC | NC | NC |
| 23 | NC | NC | NC |
| 24 | NC | NC | NC |
| 25 | NC | NC | NC |
| OTHER BOARD<br>MPG4, MPG8, MPG12 | | | |

| RJ45 PROBE | | | |
|---|---|---|---|
| **POKEYS FUNCTION** | **POKEYS PIN** | **RJ45** | **C48**<br>**FUNCTION** |
| GND | GND | 1 | GND |
| NC | NC | 2 | NC |
| NC | NC | 3 | EXT-E-STOP |
| NC | NC | 4 | NC |
| PROBE | PK15 | 5 | PROBE |
| NC | NC | 6 | EXT-E-STOP |
| 5V | 5V | 7 | E-STOP |
| NC | NC | 8 | NC |

## 6.0 SAMPLE PRODUCT INTEGRATION M43



## 7.0 DIMENSIONS




All dimensions are in Millimeters.

## DISCLAIMER

Use caution. CNC machines can be dangerous machines. Neither DUNCAN USA, LLC nor Arturo Duncan are liable for any accidents resulting from the improper use of these devices. This board is not a fail-safe device and it should not be used in life support systems or in other devices where its failure or possible erratic operation could cause property damage, bodily injury or loss of life.